

20. The polishing pad of claim 18, wherein the aperture extends through the second layer.

21. The polishing pad of claim 17, wherein the transparent section and the aperture have substantially the same dimension.

22. The polishing pad of claim 17, wherein a top surface of the transparent section is substantially coplanar with the polishing surface.

D2 23. (Amended) A polishing pad for a chemical mechanical polishing apparatus, comprising:

a first layer having a polishing surface and a solid substantially transparent section; and
a second layer adjacent to the first layer having an aperture substantially aligned with the transparent section.

24. The polishing pad of claim 23, wherein the first layer is formed of a polyurethane material.

D2' 25. (Amended) The polishing pad of claim 23, wherein the transparent section is formed of a polyurethane material.

26. The polishing pad of claim 23, wherein the second layer is a backing layer.

27. (Amended) A polishing pad for a chemical mechanical polishing apparatus, comprising:

D3 an article having a polishing surface and a solid substantially transparent section, the transparent section having a first portion with a first dimension and a second portion with a second, different dimension.

28. The polishing pad of claim 27, wherein the article includes a first layer with the polishing surface and a second layer adjacent to the first layer.

29. The polishing pad of claim 28, wherein the transparent section extends through the first and second layers.

30. The polishing pad of claim 29, wherein the first section of the aperture extends through the first layer and the second section of the aperture extends through the second layer.

31. (Amended) A chemical mechanical polishing apparatus, comprising:
a carrier head to hold a substrate;
a polishing pad having a polishing surface and a surface opposite the polishing surface,
the polishing pad including a first layer having a polishing surface with a solid substantially transparent section and a second layer adjacent to the first layer having an aperture substantially aligned with the transparent section; and
a motor to generate relative motion between the carrier head and the polishing pad.

32. The apparatus of claim 31, further comprising a platen to support the polishing pad.

33. The apparatus of claim 32, wherein the second layer abuts the platen.

34. The apparatus of claim 33, wherein a passage is formed in the platen, and the passage is substantially aligned with the aperture in the polishing pad.

35. The apparatus of claim 31, further comprising an optical monitoring system configured to direct a light beam through the aperture and the transparent section to impinge the substrate and measure reflections of the light beam from the substrate.

36. The apparatus of claim 31, wherein the transparent section and the aperture have substantially the same dimension.

37. A polishing pad for a chemical mechanical polishing apparatus, comprising:
an article having a polishing surface;
an aperture formed in the article; and
a substantially transparent plug secured in the aperture, wherein the plug includes a first section with a first lateral dimension and a second section with a second, different lateral dimension.

38. (Amended) The polishing pad of claim 37, wherein the first section of the plug is closer to the polishing surface.

05 39. (Amended) The polishing pad of claim 38, wherein the first lateral dimension is smaller than the second lateral dimension.

40. The polishing pad of claim 37, wherein article includes a polishing layer with the polishing surface and a backing layer.

41. The polishing pad of claim 40, wherein the aperture includes a first portion in the polishing layer and a second portion in the backing layer, and the first and second portions have different cross-sectional dimensions.

42. The polishing pad of claim 41, wherein the first section of the plug is positioned in the first section of the aperture and the second portion of the plug is positioned in the second section of the aperture.

43. The polishing pad of claim 37, wherein article includes a polishing layer having an underside, the first section of the plug is positioned in the aperture, and the second section of the plug the underside of the polishing layer.

44. The polishing pad of claim 43, wherein the second section of the plug is secured to the underside of the polishing layer.

45. The polishing pad of claim 44, wherein the second section of the plug is adhesively attached to the underside of the polishing layer.

46. The polishing pad of claim 37, wherein a top surface of the plug is substantially coplanar with the polishing surface.

47. A polishing pad for a chemical mechanical polishing apparatus, comprising:
a polishing layer having a polishing surface and a bottom surface;
an aperture formed in the polishing layer; and
a substantially transparent plug, wherein the plug includes a first section in the aperture and a second section secured to the bottom surface of the polishing layer.

48. The polishing pad of claim 47, wherein the first section of the plug has a first lateral dimension and the second section of the plug has a second, different lateral dimension.

49. The polishing pad of claim 48, wherein the first lateral dimension is smaller than the second lateral dimension.

50. The polishing pad of claim 47, wherein the second section of the plug is adhesively attached to the bottom surface of the polishing layer.

51. The polishing pad of claim 47, further comprising a backing layer.

52. The polishing pad of claim 51, wherein the backing layer includes an aperture aligned with the transparent plug.